Tracking the Credit Collection Period

of Malaysian Small and Medium-Sized Enterprises

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Abstract

Profits of a company depend upon its frequency of reinvestment, or turnover, of its capital. Frequent turnover would not be possible if collections are slow as they deny the company the use of its own capital. Credit collection period is, therefore, an important factor that may influence a company's overall performance. Hence, this study explores the average collection period profile of 279 small and medium-sized manufacturing companies in Malaysia using the companies' financial statements from 1999 through 2002. This paper also examines if different industry sector has different collection period. Then the study relates the average collection period to company financial performance as measured by operating profit on total assets. Finally, the study investigates if there is any relationship between collection period and company size. These relationships are then examined again after taking industry sub-sector into consideration.

Keywords: Credit collection period, SMEs

1. Introduction

Credit is the ability of obtaining economic value now, on good faith, in return for a promise to pay at a specified date in the future. Trade credit involves supplying goods and services on a deferred payment basis, thus creating an interval between purchase and payment. Rather than requiring cash immediately following to the sales transaction, the selling firm allows payment at a later date, therefore granting credit to finance the buying firm's purchases of the seller's goods. Pending payment, the amount owed by the buyer is recorded in the seller's balance sheet as trade debtor or accounts receivable. Categorised under current assets, trade debtor represents the supplier's claim against the customer.

Alternatively, trade credit can be viewed as a loan a supplier provides to its customers in conjunction with product sales. This short-term loan is tied in both timing and value to the exchange of goods (Ferris, 1981). It is a by-product that is being packaged together to the goods sold or services rendered to customers, ensuing to a simultaneous transaction in both financial services and the products supplied.

In general, a company would want to collect receivables sooner rather than later as this will enable the company to increase its frequency of reinvestment, or turnover, of its capital. Frequent turnover would not be possible if collections are slow as they deny the company the use of its own capital. Late payments not only reflect on the efficiency of the credit department but also result in increased collection costs, and increase the risk that payment will never occur. Delayed payments entail an increase in working capital for the company due to the need to raise financing from one of the four sources (Chittenden & Bragg, 1997): increased debt, which leads to higher interest payments, reduced profits, and reduced borrowing capacity; increased equity, which dilutes and devalues existing investors' stakes if stockholders returns are unchanged; reduced capital investment in the future, limiting the seller's long-term business performance; or an increase in the length (and therefore the amount) of trade credit taken from suppliers. Collection period is, therefore, an important factor that may influence a company's overall performance.

But, important though credit collection function is, it is often neglected and managed inefficiently. The ability to liquidate the receivables should be of great concern to companies since non-payments and late payments by credit customers can negatively affect the business operation. The problem, however, is not new and not confined to any particular industry or country. In the UK for example, the Bolton Committee (Bolton, 1971) reports that many firms are haphazard in granting credit and slow and irregular in the collection of debts, on occasion even neglecting for weeks on end to submit bills for work done or goods delivered. Similar situation happens in the US. A survey by Grablowsky (1976) reports that most firms moved an account from active in-house collection to the bad debt file between four to twelve months after the due date. The survey

also reveals that even if a customer became a slow payer or was occasionally delinquent, many retailers continued to extend credit to him or her. These signify the existence of collection problems in the US. This was also highlighted by McMahon and Holmes (1991) in their review of small business financial management practices in North America. Although dated, these patterns still appear to hold today. More recent studies show that there are still persisting problems related to collection, late payments and none-payments (Howorth & Reber, 2003; Howorth & Wilson, 1998; Peel, Wilson, & Howorth, 2000).

2. Research Questions

Handling collection is an integral part of trade credit management. For, without effective collection effort, there will be inadequate resources to support the working capital requirements and hence, affecting the liquidity position of a company. The importance of sufficient liquidity in any company needs no special emphasis. Sufficient level of liquidity must be achieved and maintained so that funds would be readily available to settle off obligations as they arise or due. The adequacy of cash and other current assets, together with efficient working capital management, essentially determine the survival or demise of the company. Therefore, matters related to trade credit collection need to be explored so as to enable companies to understand and better manage their trade credit. It is in this context that an attempt has been made in this paper to look into some aspects of collection period experienced by the local manufacturing SMEs.

In broad terms, this study is undertaken to put forward some empirical evidence about the distribution of average collection period (ACP) of trade credit by small and medium-sized enterprises in the manufacturing sector, and its relationships to some selected factors. Specifically, the present study is carried out to address the following research questions:

(1) What is the profile of the ACP among the manufacturing SMEs in Malaysia?

(2) Do different industry sectors have different levels of ACP?

(3) Does ACP have any relationship to financial performance?

(4) Is ACP related to company size?

The remainder of this paper is organised as follows. In the next section, the extant literature on late payment and collection period of trade credit is succinctly reviewed. The methodology is explained and the summary statistics of the data is presented in the section that follows. Next, the findings are presented and the final section offers the conclusion.

3. Literature Review

Trade credit literature has been explored from various perspectives. Several early publications focused on the credit management practices adopted by large (for example Goddard & Jay, 1981; Kirkman, 1977; Pike & Cheng, 2001) and small companies (Grablowsky, 1976; Peel et al., 2000; Wilson, 1996). Besides reporting the survey on the operations of the credit practices of the sampled companies, some of these studies also looked into a variety of relationships among the different aspects of credit management. Other studies related to trade credit investigate the motives of credit extension (among others include (Deloof & Jegers, 1996; Emery, 1984; Ferris, 1981; Pike, Cheng, & Chadwick, 1998; Schwartz, 1974). These studies looked into the rationale to offering credit to customers. Still, another trade credit management issue that has caught researchers' attention is outsourcing. Mian and Smith (1992) study outsourcing practices in the US while Lamminmaki and Guilding (2004) examine the practices by Australian companies.

Another important element of credit management is collection. Many of the studies done on trade credit collection deliberate on credit period, late payment, and collection period. Credit period is the length of time allowed to the buyer before payment is considered past due. The period is usually conveyed, as credit term, to the credit customer either verbally, or expressed in writing. Late payment is the fulfilment of debt obligation at a date beyond the credit period. Collection period, on the other hand, is the number of days taken by customers to pay their bills. To sum up, late payment occurs when the collection period exceeds the credit period. While collection period can be calculated from the financial statements, information on credit period is not available from secondary sources. With such limitation, this study gives attention only to collection period.

Several studies concentrate on late payment by small firms in the UK. Howorth and Wilson (1998) develop 13 small firm case studies and detail analysis on their management and financing of trade credit showed that late payment problems are common. However, firms suffering due to these problems are those undercapitalised and had poor credit management practices, and did not do anything about their debtors' late payments. Chittenden and Bragg (1997) examine the impact which late payment has on the SMEs and the overall economy. Peel et al. (2000) analyse the response of small firms on the legislative and regulatory measures in curbing late payment in the UK. In their study on credit management policies within large UK companies, Pike and Cheng (2001) find that firm size is negatively associated to both collection period and late payment. Smaller firms tend to have longer collection period and experience greatest delay in receiving debt payment from customers. In contrast, Shipley and Neale (1984), in their study on the UK and US firms, observe that the average collection period in both countries were noticeably longer among the larger companies. Deloof and Jerger (1996) too find similar results among Belgian firms. Comparable findings also emerge in the African manufacturing sector (Fafchamps, 1997).

Deloof (2003) investigates the relation between working capital management and corporate profitability and suggests corporate profitability can be increased by reducing the debtors days and inventory days. Several other research which look at the relationship between operating performance and cash conversion cycle (CCC) offer similar results of negative association (Kamath, 1989; Shin & Soenen, 1998; Soenen, 1993; Wang, 2002). In view of the fact that CCC depends on the inventory, receivables, and payables periods, cutting down the collection period will almost always reduces the CCC. Although these studies employ CCC, rather than the collection period data directly, they implicitly indicate the relationship between ACP and financial performance.

On the local scene, Regupathi and Zainudin (2003) observe the collection period of companies listed on the Bursa Malaysia (the Malaysian stock exchange). Their findings indicate that different industry sectors had different collection period, and for all sectors, the collection period was lower before, compared to after, the 1997 financial crisis. The study also looks into the relationship between collection period and company size. The results vary for different sectors. In consumer products, industrial products, and construction sectors, larger companies seemed prompter in collecting trade credit, but quite the reverse for plantation sector, and non-association for other sectors included in the study. The present research adopts Regupathi and Zainudin's (2003) article, but taking small and medium-sized manufacturing enterprises as the subject. However, unlike the earlier research, this study only managed to draw on a 4-year data instead of ten years as used in the previous study. This is comprehensible as the financial data on listed companies are more publicly accessible compared to SMEs. This study also does not take economic condition as one of the variables since there was no major variation in the general economy of Malaysia during the period under study.

4. Data and Methodology

The present study is based on a sample of 279 small and medium-sized manufacturing enterprises operating in Malaysia. At the first instance, the record of Small and Medium Industries Development Corporation (SMIDEC) was referred for the selection of units. SMIDEC is a specialised government agency that was established to further promote the development of small and medium industries in the manufacturing sector through the provision of advisory services, fiscal and financial assistance, infrastructural facilities, market access and other support programmes. The directory comprises small and medium-sized manufacturing companies registered with the Companies Commission of Malaysia (CCM) under the Companies Act 1965. Out of one thousand companies randomly selected from the SMIDEC's list, only 279 were chosen for the study due to availability of data. This study used the data extracted from the annual financial statements, from 1999 to 2002, of the selected manufacturing SMEs. The companies' annual financial statements were obtained from Business and Search Information Services (BASIS), a company that compiles and provides business information for their clients.

The dependent variable in the study is the average collection period (ACP) that was computed for each of the 279 SMEs, and for each of the years from 1999 through 2002. It was calculated by taking the trade debtors item from the balance sheet and dividing that with the revenue or turnover (sales) item from the income statement, and multiplying this by 360 days. ACP, is the primary indicator of the quality of receivables that measures the average speed, in days, with which the receivables or trade debts turn into cash.

This study selected three independent variables. The first independent variable is the industry sector. Since the unit of sample was selected from the SMIDEC directory, the study simply adopted the listing sector as categorised by the agency, with slight modification. As there are only two companies in the pharmaceutical industry, and just one in palm oil-based industry, all three were reclassified under chemical and petrochemical products sector. The breakdown of the 279 sample companies is presented in Table 1. In term of number, the manufacturing SMEs in the four sectors, namely machinery and engineering, electric and electronic, transport equipment and metal products, made up the majority, contributing slightly more than 65 percent of the sample companies. All other sectors involved in the study have less than 20 companies each, with non-metallic mineral products, paper and printing, and textile, apparel and leather sectors poorly represented with less than 10 companies each (see Table 1).

The second independent variable is the financial performance. Several previous studies had used operating profits in calculating profitability and financial performance (Eljelly, 2004; Shin & Soenen, 2000; Wang, 2002; Zainudin, 2006). Operating profits is preferred to after-tax profits as it does not consider taxes in the computation. Occasionally, profits after tax may not truly reflect the earnings generated from business operations particularly where tax incentives are available. Hence, in line with many earlier researches, this study uses operating profits divided by total assets (OPTA) to represent financial performance.

The third and final independent variable is company size. Many previous research use total assets and/or sales to represent size of a firm (Eljelly, 2004; Moss & Stine, 1989; Regupathi & Zainudin, 2003; Zainudin, 2006). Although the market value of equity could also be a proxy to represent size, the author feels that the figure is less stable in the current market condition. Besides, unlike larger firms whose shares are quoted on the stock exchange, the value of equity for small firms could not be easily determined. In this study, size is measured in terms of total assets instead of sales since the data on the latter is not complete. Furthermore, Eljelly (2004) observes that there exists a strong highly positive correlation between total assets and sales which show that they are substitute measures of size (see Table 2).

One potential problem with financial data is the question of normality of the underlying parameters. Hence, prior to further analysis, the distribution of the variables representing the collection period, financial performance and size of the sample companies are observed. The distributions of these variables are highly skewed as indicated by the skewness statistics and kurtosis statistics presented in Table 2. Next, a test of normality on the variables was conducted. The Shapiro-Wilk statistics shown in Table 3 are found to be statistically significant, indicating that the average collection period, financial performance and company size were not distributed normally. Since the results suggest non-normality for the variables, non-parametric statistics are utilised in addressing the research questions (see Table 3).

To address the research questions posed earlier, first of all, descriptive statistics were used in providing the profile of the ACP of the Malaysian manufacturing SMEs. Next, to examine whether or not different industry sectors had different levels of ACP, the non-parametric Kruskal-Wallis test statistic was used. Finally, to address the third and fourth research questions, i.e., to establish the relationships between ACP and financial performance, and between ACP and company size, Spearman rank correlation was used.

5. Findings

Table 4 presents the profile of ACP for the various industry sectors in Malaysia. From the descriptive summary of the variables, it is found that the mean and the median values (number of days) are very different for most industry sectors. In describing the ACP profile, given a very skewed distribution of ACP, the median rather than the mean is preferred as the latter is less representative of the central tendency value of ACP. Moreover, some extreme cases might have exaggerated the mean and caused it to be less meaningful. For example, in the transport equipment sector where, upon a meticulous scrutiny, it is found that there is a company with an ACP of over 1,000 days. This might not reflect the company's current situation, but could have result from its practice of not writing off uncollectible old debts. These bad debts are being carried forward from one year to another, subsequently accumulating and swelling the trade receivables, and therefore the ACP. Accordingly, the median ACP tends to be more precise in describing the ACP profile.

Using the median ACP as the basis for comparison, the findings indicate that trade credit was collected soonest in the electric and electronic sector (26 days), followed by rubber products sector (60 days). Except for textile, apparel and leather industry that takes about 138 days, other sectors spend not more than three months, on average, to collect their trade receivables from their credit customers (see Table 4).

To examine whether or not different industry sectors had different levels of ACP, the Kruskal-Walis test is used. To derive a more meaningful result, the 12 industry sectors are sorted into seven groups based on the characteristics of their distribution. The results presented in Table 4 shows that the statistic is significant, signifying that the ACPs for all the groups are different. The ranking produced from the Kruskal-Walis test appears to agree to the ranking of the ACP median of each group. The test indicates that trade credit was collected soonest by SMEs in the electric and electronic sector while those in the textile, apparel and leather sector seems to take the longest time in their collection effort (see Table 5).

To answer the third and fourth research questions, the non-parametric Spearman rank correlation coefficient was utilised. The results are presented in Table 5. From the table, it is evident that the coefficient between ACP and OPTA is -0.089. The value of the correlation is found to be significant at 1 percent level. It indicates that there is a weak negative association between collection period and financial performance of SMEs. This means that companies with shorter collection period tend to perform better. This is consistent with many previous studies that look at the ACP-financial performance relationship (Deloof, 2003; Kamath, 1989; Shin & Soenen, 1998; Soenen, 1993; Wang, 2002). It is of course unlikely that there is a direct causal relationship between ACP and financial performance as both variables are outcomes of a wide range of operating factors.

Correspondingly, the correlation coefficient between ACP and TA is quite similar. The Spearman correlation coefficient of -0.296 reveals that there is also a low degree of negative correlation between collection period and company size for the Malaysian manufacturing SMEs. This negative association implies that smaller firms be likely to experience longer collection period. The results concur to Pike and Cheng (2001) but in contrast to other studies (Deloof & Jegers, 1996; Fafchamps, 1997; Peel et al., 2000; Shipley & Neale, 1984) that suggest bigger companies tend to have longer collection period.

Although the non-parametric Spearman rank correlation coefficients are found to be statistically significant for both relationships, the measure does not allow us to identify causes from consequences. It is difficult to say that if shorter ACP leads to better financial performance, nor can we say whether length of the ACP is influenced by company size (see Table 6).

The relationships between ACP and financial performance, and between ACP and company size are further explored taking industry sector into account. Table 6 shows both relationships for each of the seven categories of industry sector. Looking at the relationship between ACP and financial performance (represented by OPTA), the results, in general, show that in some industry sectors, ACP appeared to be independent of financial performance, whereas in others, there seemed to be some association. In the machinery and engineering, chemical and petrochemical products, transport equipment, metal products, and wood and wood products, ACP appeared to be negatively correlated with financial performance. This

denotes that companies in these sectors that have shorter ACP tend to perform better.

Further analysis on the relationship between ACP and company size (as measured by total assets, TA) by industry sector is also shown in Table 6. The ACPs for paper and paper products, plastic products, and textile, apparel and leather sectors seemed not to have any correlation with company size. Except for food, beverage and tobacco, and non-metallic mineral products sectors, which have positive association, all remaining sectors have their ACPs negatively correlated to company size. This indicates that larger SMEs in the food, beverage and tobacco, and non-metallic mineral products sectors tend to take longer to collect trade debts. In other remaining sectors that exhibit negative association, larger companies tend to be more prompt in their trade credit collection. Unfortunately these results of correlation by industry sector could not be compared justly to a previous study by Regupathi and Zainudin (2003) as the basis of industry sector classification is very different.

6. Conclusion

Credit collection is only part, but for many firms a very important component, of trade credit management. This study provides the profile of trade credit collection period for manufacturing SMEs in various industry sectors. The findings reveal that different sectors had different ACPs, implying that some sectors were more efficient than others in managing their credit collection. The SMEs in the electric and electronic sector were prompter in collecting their trade credit compared to the other sectors. The textile, apparel and leather sector seemed to be the slowest collector.

The findings also revealed that there is a negative correlation between collection period and financial performance. Companies that collect their debts faster seemed to generate better returns. This is as expected since early collection enables the company to reinvest its capital more frequently, thus, increases its return. However, after the analysis is performed separately based on industry sector, the relationship is statistically significant for only five sectors out of 12. More precisely, SMEs in the machinery and engineering, chemical and petrochemical products, transport equipment, metal products, and wood and wood products that experienced shorter collection period are likely to perform better. In other industry sectors, the trade credit collection period and financial performance seemed to be independent of each other.

The study also indicated that collection period is negatively associated to company size, with smaller-sized companies facing the greatest delay. Perhaps, though not conclusive, being small, the SMEs are at the mercy of their large and dominant customers who are able to dictate terms to their suppliers. Nevertheless, this relationship is also observed individually based on industry sector. It is found that three industry sectors did not display any relationship between collection period and size, two sectors had positive correlation while the remaining seven sectors registered negative association.

In summary, this paper attempted to explore the collection period of SMEs in the manufacturing sector and relating it to some selected variables, namely financial performance and company size. Besides looking at the overall sampled companies, relationships among the variables for individual industry sectors are also examined. Note that the dependent variable in the study is collection period. Issues on late payment, which need more urgent attention, were not considered, as information on the credit period is not available. Hence, further work need to be done to include more variables to better portray the situation of credit collection in Malaysia.

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Acknowledgements

Table 1. Number of Companies by Industry Sector

Industry Sector	Number
Food, Beverage & Tobacco	14
Machinery & Engineering	53
Chemical & Petrochemical Products	17
Paper and Printing	9
Plastic Products	16
Electric & Electronics	50
Textile, Apparels & Leather	7
Rubber Products	13
Transport Equipments	35
Metal Products	44
Non-Metallic Mineral Products	5
Wood & Wood Products	16
Total	279

Table 1 provides the breakdown of the sample companies categorised according to their core business activities. The sectors are based on the categorisation used in the directory of SMEs published on the official website of the Small and Medium Industries Development Corporation.

Table 2. Skewness and Kurtosis Statistics of Variables

Variables	Skewness statistics	Kurtosis statistics
Average collection period (ACP)	7.544	81.238
Operating profit to total assets ratio (OPTA)	-2.447	25.776
Total assets (TA)	8.222	82.956

Table 2 shows the skewness and kurtosis statistics of the variables. The skewness statistics of more than +1 and less than –1 indicate that the distributions are markedly skewed. The high positive kurtosis statistics for all the variables signify that the distributions are more peaked than the normal curve. Both skewness and kurtosis statistics for all the variables imply that the distributions are quite different from a normal curve.

Table 3. Test of Normality

Variables	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ACP	.229	1106	.000	.478	1106	.000
OPTA	.141	1106	.000	.832	1106	.000
TA	.368	1106	.000	.296	1106	.000

Table 3 displays the results for normality test on the variables. Both the Kolgomorov-Smirnov and Shapiro-Wilk statistics are statistically significant and hence, this signifies that the variables are not distributed normally.

Table 4. ACP by Industrial Sector and the Kruskal-Wallis Test

Group	Industry sector	Median ACP	N	Mean Rank
1	Food, Beverage & Tobacco; Non-Metallic Mineral Products	78.12	76	582.22
2	Machinery & Engineering; Chemical & Petrochemical Products; Transport Equipments	87.72	412	618.88
3	Paper and Printing; Plastic Products	90.13	100	659.07
4	Electric & Electronics	25.90	199	318.39
5	Textile, Apparels & Leather	137.65	28	821.82
6	Rubber Products	59.57	52	469.44
7	Metal Products; Wood & Wood Products	76.09	239	570.10
Total cases			1106	
Kruskal-Wallis Chi-Square				160.617
Degree of freedom				6
Asymptotic significance				.000

Table 4 shows the profile of ACP for the various sub-sectors of the manufacturing sector. The median indicates that trade credit was collected soonest in the electric and electronic sub-sector while the textile, apparels and leather sub-sector was the slowest. The table also shows the results of the Kruskal-Wallis test. The statistic is significant, indicating that the ACPs for all the seven sub-groups were indeed different. This confirms that the trade credit collection period was different in different sub-sectors of the manufacturing sector.

Table 5. Correlations between ACP and OPTA and between ACP and TA

			OPTA	TA
Kendall's tau_b	ACP	Correlation Coefficient	-.060**	-.202**
		Sig. (2-tailed)	.003	.000
		N	1106	1106
Spearman's rho	ACP	Correlation Coefficient	-.089**	-.296**
		Sig. (2-tailed)	.003	.000
		N	1106	1106

** Correlation is significant at the 0.01 level (2-tailed).

Table 5 presents the results of correlation between ACP and both financial performance and company size. The value of the correlation is found to be significant. This implies the presence of negative association between ACP and both variables, indicating that the lower is the ACP, the better the company perform, and the bigger it is.

Table 6. Correlation Coefficients between ACP and OPTA and between ACP and TA

Group	Industry sector	OPTA	TA
1	Food, Beverage & Tobacco; Non-Metallic Mineral Products	.162 .162 76	.444** .000 76
2	Machinery & Engineering; Chemical & Petrochemical Products; Transport Equipments	-.101* .041 412	-.219** .000 412
3	Paper and Printing; Plastic Products	-.103 .306 100	-.135 .179 100
4	Electric & Electronics	-.039 .588 199	-.324** .000 199
5	Textile, Apparels & Leather	-.235 .229 28	-.157 .425 28
6	Rubber Products	-.018 .897 52	-.407** .003 52
7	Metal Products; Wood & Wood Products	-.133* .040 239	-.143* .027 239

Each cell provides the correlation coefficients, the p-value, and the number of cases.
The single asterisk and double asterisks indicate p-values of less than 5 percent and
1 percent respectively.

Table 6 provides the correlation coefficients between ACP and financial performance and size, but taking industry sub-sectors.